RECEIVED
CENTRAL FAX CENTER
JAN 1 1 2007

REMARKS

Claims 10, 11, 22, and 26-28 are currently pending in the subject application, and are presently under consideration. Claims 10, 11 and 22 are allowed. Claims 26-28 are rejected. Favorable reconsideration of the application is requested in view of the comments herein.

Rejection of Claims 26-28 Under 35 U.S.C. §103(a)

Claims 26-28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,275,518 to Takahashi, et al. ("Takahashi") in view of U.S. Patent No. 6,522,643 to Jacomb-Hood, et al. ("Jacomb-Hood"). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claim 26 recites a system for generating a variable hop cycle beam laydown comprising first cells supported by a first beam hop cycle associated with a first downlink beam, second cells supported by a second beam hop cycle associated with a second downlink beam, the second beam hop cycle being different than the first beam hop cycle, and transition cells supported by a transition beam hop cycle. In the responses to the both of the Office Actions dated March 20, 2006, and August 30, 2006, respectively, Representative for Applicant argued that Takahashi fails to teach a beam hopping system. As described in the responses to these Previous Office Actions, Takahashi discloses a frequency hopping communication system, such that a plurality of predetermined radio frequencies are hopped at regular time intervals, the hopping pattern defining an order of radio frequencies on a given cell (see, *e.g.*, Takahashi, col. 3, ll. 50-57). Representative for Applicant respectfully submits that frequency hopping, as taught by Takahashi, is an entirely different communication concept from beam hopping, as recited in claim 26.

In the Office Action dated October 30, 2006, (hereinafter, "Present Office Action"), the Examiner maintains that Takahashi teaches a first *beam* hop cycle, a second *beam* hop cycle, and a transition *beam* hop cycle (Present Office Action, page 3; emphasis added). In addition, the Examiner specifically states that "Takahashi teaches *'frequency hopping in different cells'* and *'a plurality of predetermined radio frequencies are hoped* [sic] *at regular time intervals'*," (Present

Office Action, page 3; citing Takahashi, col. 3, ll. 50-64). The Examiner thus acknowledges the teaching of a frequency hopping scheme in Takahashi, but fails to recognize the fundamental difference between frequency hopping and beam hopping in communication systems.

In addition, Representative for Applicant respectfully submits that the Examiner's emphasis on "cells" in the rejection of claim 26 to demonstrate a teaching of a beam hop cycle of first cells, second cells, and transition cells is misplaced. The frequency hopping scheme taught by Takahashi is such that frequencies are hopped within an individual cell for communications between a base station and radio stations in a ground-based radio LAN (see Takahashi, *e.g.*, FIG. 1). Multiple cells are fundamental for frequency hopping, as each adjacent cell hops frequencies so as to avoid interference with each other caused by transmitting the same frequency (see Takahashi, *e.g.*, col. 4, ll. 41-67). Also, frequency hopping, as described above, is specific to a given cell. However, as recited in claim 26, the first beam hop cycle, the second beam hop cycle, and the transition hop cycle each support a plurality of cells (*i.e.*, the first cells, the second cells, and the transition cells, respectively), and not just one cell. Even assuming *arguendo* that such an element can be considered as taught by Takahashi, the Examiner asserts that Takahashi teaches transition cells supported by a transition hop cycle without providing any support in the teachings of Takahashi for such an assertion as to distinguish transition cells from the first cells and the second cells, as distinguishable in claim 26. Furthermore, as described above, the frequency hopping scheme of Takahashi is directed to communications between a base station and radio stations in a cell. Such communications, however, cannot be considered a "beam" hop cycle, as a "beam" inherently refers to a directed communications, whereas the communications between the base station and the radio stations in Takahashi is omnidirectional (see Takahashi, *e.g.*, FIGS. 1, 3, and 14).

For all of these reasons, Representative for Applicant maintains the argument that Takahashi fails to teach or suggest first cells supported by a first beam hop cycle associated with a first downlink beam, second cells supported by a second beam hop cycle associated with a second downlink beam, the second downlink beam being different than the first beam hop cycle, and transition cells supported by a transition beam hop cycle, as recited in claim 26.

Claim 26 also recites that the transition beam hop cycle comprises transition downlink beam energy transmitted to a first transition cell during a first percent of a time period, the transition downlink beam energy transmitted to a second transition cell during a second percent of the time period and a power gated downlink beam transmitted to at least one of the first transition cell and the second transition cell for the remaining percent of the time period. The Examiner concedes that Takahashi does not teach or suggest this element of claim 26 (Present Office Action, pages 3-4). The Present Office Action asserts that Jacomb-Hood teaches these elements of claim 26 based on the beam-hopping scheme between a satellite and a plurality of cells (Present Office Action, pages 4-5; citing Jacomb-Hood, FIG. 1; Abstract; col. 1, ll. 33-44; col. 2, ll. 14-19). Representative for Applicant respectfully disagrees.

Jacomb-Hood teaches a beam-hopping cellular communication system in which communication resources are assigned based on a traffic estimate for each cell and a number of available beams (Jacomb-Hood, Abstract). The communication resources, as taught by Jacomb-Hood, are based on a dwell time that is calculated and assigned to each cell (Jacomb-Hood, Abstract). FIG. 3 of Jacomb-Hood demonstrates a sequential allocation of time slots for cells for each beam. However, Jacomb-Hood provides no teaching or suggestion as to a locational relationship between cells, such that Jacomb-Hood does not teach or suggest transitional cells that are located adjacent to first cells and second cells that receive different downlink beam energies. Jacomb-Hood also provides no teaching or suggestion as to a temporal relationship between groups of cells and transitional cells, such that a cell and a non-adjacent transition cell are each provided downlink beam energy for a same percent of time. Instead, Jacomb-Hood teaches that each cell is independently assigned a dwell time. Jacomb-Hood also provides no teaching or suggestion as to providing a power gated downlink beam to at least one of a first transition cell and a second transition cell for a remaining percent of the time period. The teachings of Jacomb-Hood are merely directed to a beam-hop cycle for cells with an unspecified relationship of location and downlink beam energy relative to each other.

Therefore, for all of the above reasons, Jacomb-Hood does not teach or suggest transition beam hop cycle comprises transition downlink beam energy transmitted to a first transition cell a

first percent of a time period, the transition downlink beam energy transmitted to a second transition cell a second percent of the time period, and a power gated downlink beam associated with at least one of the first transition cell and the second transition cell for a remaining percent of the time period, as recited in claim 26. Jacomb-Hood further does not teach or suggest the first downlink beam is provided to one of the first cells that is adjacent to the first transition cell during one of the second percent of the time period and the remaining percent of the time period, and that the second downlink beam is provided to one of the second cells that is adjacent to the second transition cell during one of the first percent of the time period and the remaining percent of the time period, as also recited in claim 26. Accordingly, neither Takahashi nor Jacomb-Hood, individually or in combination, teach or suggest claim 26. Withdrawal of the rejection of claim 26 is respectfully requested.

For the reasons described above regarding claim 26, claim 27 should likewise be patentable in view of Takahashi and Jacomb-Hood. In addition, claim 27 also recites a power gating circuit coupled to the waveform generator for gating power in the transition downlink beam. Representative for Applicant respectfully submits that the Present Office Action does not address this element of claim 27, and further respectfully submits that neither Takahashi nor Jacomb-Hood, individually or in combination, teach or suggest this element of claim 27. Therefore, neither Takahashi nor Jacomb-Hood, individually or in combination, teach or suggest claim 27. Withdrawal of the rejection of claim 27 is respectfully requested.

For the reasons described above regarding claim 26, claim 28 should likewise be patentable in view of Takahashi and Jacomb-Hood. Therefore, neither Takahashi nor Jacomb-Hood, individually or in combination, teach or suggest claim 28. Withdrawal of the rejection of claim 28 is respectfully requested

Serial No. 09/599,036 Docket No. NG(ST)8104

CONCLUSION

In view of the foregoing remarks, Applicant respectfully submits that the present application is in condition for allowance. Applicant respectfully requests reconsideration of this application and that the application be passed to issue.

Please charge any deficiency or credit any overpayment in the fees for this amendment to our Deposit Account No. 20-0090.

Respectfully submitted,

Date 1/11/07

Christopher P. Harris
Registration No. 43,660

CUSTOMER NO.: 26,294

TAROLLI, SUNDHEIM, COVELL, & TUMMINO L.L.P.
1300 EAST NINTH STREET, SUITE 1700
CLEVELAND, OHIO 44114
Phone: (216) 621-2234
Fax: (216) 621-4072